

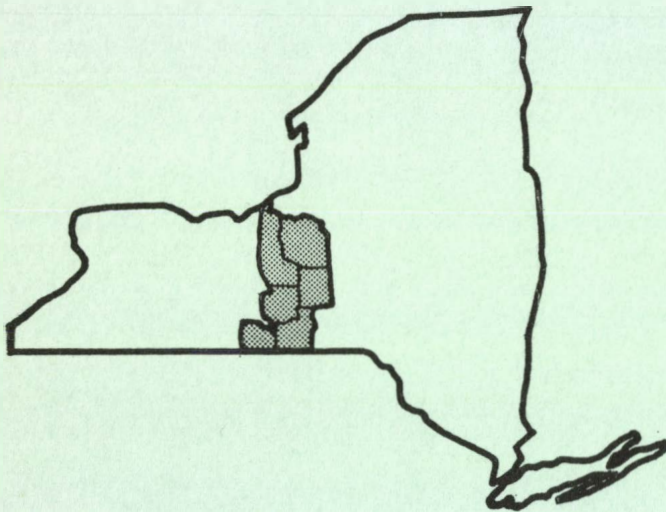
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Forest Statistics for

NEW YORK

Forest District No. 3



Forest Statistics Series:
New York No. 3

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1953
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United States Department of Agriculture • Forest Service

FOREWORD

This is the third in a series of reports about forest areas and timber volumes in the State of New York. Previous reports have dealt with Forest Districts No. 1 and No. 7. These reports are a product of the forest survey of the Northeast, carried on by the Northeastern Forest Experiment Station as part of the nationwide forest survey being made by the Forest Service, U. S. Department of Agriculture.

A similar report is planned for each of the other forest districts of New York. The primary purpose of these reports is to provide basic forest statistics for the administrative use of the New York Department of Conservation.

The New York Department of Conservation aided the Northeastern Station greatly in the forest survey of the State. The Department not only provided the aerial photographs used in the survey, but also cooperated in many other phases of the work.

Field work in Forest District No. 3 was supervised by Harry W. Camp, Jr. The statistical procedures for obtaining field-inventory data were developed by C. Allen Bickford. Computations were made under the supervision of Roland H. Ferguson.

Ralph W. Marquis

RALPH W. MARQUIS
Director

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FOREST STATISTICS FOR NEW YORK FOREST DISTRICT No. 3

Prepared by

Division of Forest Economics

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GENERAL

FOREST DISTRICT No. 3 is located in central New York, south and west of Syracuse. It extends from Lake Ontario southward to the Pennsylvania border, and includes part of the Finger Lakes Region.

The northern part of the district drains into the Oswego River and eventually into Lake Ontario. The rest drains southward into Pennsylvania and the Susquehanna River.

The Forest Area

The total land area of Forest District No. 3 is more than 2 million acres. About one-third is forest land.

Some 5,000 acres of forest land are reserved from commercial timber cutting because they are in state parks and community forests. All the rest--613,800 acres--is commercial forest land.

The most extensively forested county is Chemung; more than 40 percent of its land is covered with commercial forests. Onondaga County has the smallest amount; less than one-fifth of its area is in commercial forests.

Ownership

Almost 90 percent of the commercial forest land is privately owned. This is about equally divided between farmers and other private owners.

Most of the 73,000 acres of public forest land are owned by the State, including about 56,000 acres in state production forests and nearly 13,000 acres in state game-management areas. The U. S. Army holds about 1,000 acres of forest land in the district, and the Soil Conservation Service about 500 acres; these are the only Federal holdings in the district.

Forest Types

Half the commercial forest area is occupied by the sugar maple-beech-yellow birch forest cover type. This type is usually found on the higher, cooler sites. Another one-sixth of the commercial forest area is covered with aspen. The presence of this type commonly indicates some past mistreatment of the land, such as clear-cutting or fire. Somewhat more than 10 percent of the commercial forest land is dominated by some species of oak. Softwood types--chiefly white pine--are found on another 10 percent. There is also some ash-elm-maple type on the moister sites.

Forest Stands

Nearly half of the sawlog volume in the district grows on 13 percent of the commercial forest area. This area bears sawtimber stands of 5,000 or more board feet per acre. Most of the remaining 87 percent of the commercial forest land is very lightly stocked with sawtimber.

There are some 73,000 acres of poorly stocked seedling-and-sapling stands and nonstocked areas that are not producing much timber.

Timber Volume

The commercial forest lands in Forest District No. 3 carry about $1\frac{1}{4}$ billion board feet of sawtimber (log scale,

International $\frac{1}{4}$ -inch rule). Five hardwood species (sugar maple, basswood, ash, beech, and red maple) make up more than 60 percent of this volume. Softwoods (mostly hemlock and white pine) account for 15 percent.

The entire growing stock amounts to more than 500 million cubic feet. Of this volume, about half is in saw-timber trees; pole-timber trees contain the rest.

This cubic volume is the equivalent of nearly $6\frac{1}{2}$ million standard cords, including bark. Four-fifths of it is in trees smaller than 15 inches d.b.h. (diameter breast high).

NEW YORK FOREST DISTRICT NO. 3

Table 1.--Land area by major classes of forest land, 1950

Class of land ¹	Area	
	<u>Acres</u>	<u>Percent</u>
Forest land:		
Commercial	613,800	28
Noncommercial ²	5,000	(3/)
All forest land	618,800	28
Nonforest land	1,570,600	72
All land ⁴	2,189,400	100

¹See Appendix for definitions.

²Includes 3,200 acres in state parks, as of September 30, 1952.

³Less than 1 percent.

⁴From Census of Agriculture, 1950. Water areas of 1 to 40 acres are included here in the estimate of non-forest acreage.

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Table 2.--Land area and commercial forest-land area
by county, 1950

County	Land area	Commercial forest-land area	
	<u>Acres</u>	<u>Acres</u>	<u>Percent</u>
Cayuga	447,300	87,200	19
Chemung	263,700	108,800	41
Cortland	321,300	97,300	30
Onondaga	506,900	92,500	18
Tioga	336,000	125,200	37
Tompkins	314,200	102,800	33
Total	2,189,400	613,800	28

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Table 3.--Commercial forest-land area by ownership, 1950

Ownership class	Acreage held	
	<u>Acres</u>	<u>Percent</u>
Private:		
Farm forest land ¹	274,900	45
Other private	265,900	43
Total private	540,800	88
Public:		
State ²	70,800	12
Federal	1,500	(³ / ₁)
Municipal	700	(³ / ₁)
Total public	73,000	12
All ownerships	613,800	100

¹Census of Agriculture, 1950.

²Includes commercial forest land administered by the New York State Conservation Department as production forests or game-management areas. Total area of production forests and game-management areas amounted to 61,860.28 and 17,997.86 acres respectively as of September 30, 1952.

³Less than 1 percent.

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Table 4.--Commercial forest-land area by forest type, 1950

Forest type	Area	
	<u>Acres</u>	<u>Percent</u>
White pine	26,800	4
Hemlock	18,300	3
Other softwood types ¹	15,300	2
Sugar maple-beech-yellow birch	320,300	53
Aspen	105,300	17
Ash-elm-maple	56,600	9
Chestnut oak	27,500	5
Red oak	26,900	4
Oak-white pine	16,800	3
All types	613,800	100

¹Includes spruce and cedar-spruce types.

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Table 5.--Commercial forest-land area by forest-type group
and stand-size class, 1950

Forest-type group	Saw-timber stands	Pole-timber stands	Seedling-and-sapling stands and other areas	Total area
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Softwood types	16,900	20,000	23,500	60,400
Sugar maple-beech-yellow birch	138,300	117,600	64,400	320,300
Oak types	13,800	51,200	6,200	71,200
Other hardwood types	9,500	55,000	97,400	161,900
All types	178,500	243,800	191,500	613,800
Percent	29	40	31	100

NEW YORK FOREST DISTRICT NO. 3

Table 6.--Commercial forest-land area by stand-size class
and watershed, 1950

Stand-size class	Watershed		Total
	Oswego River	Susquehanna River	
	<u>Acres</u>	<u>Acres</u>	<u>Acres</u>
Sawtimber stands:			
More than 5,000 bd.ft. per acre	32,600	45,100	77,700
1,500-5,000 bd.ft. per acre	22,900	77,900	100,800
Poletimber stands:			
More than 600 cu.ft. per acre	64,100	88,600	152,700
200-600 cu.ft. per acre	31,000	60,100	91,100
Better stocked ¹ seedling- and-sapling stands	61,600	57,000	118,600
Poorly stocked seedling- and-sapling stands and other areas	27,600	45,300	72,900
Total	239,800	374,000	613,800
Percent	39	61	100

¹40 percent or better.

NEW YORK FOREST DISTRICT NO. 3

Table 7.--Net volume of live timber on commercial forest
land by species, 1950

Species	Growing stock ¹		Saw- timber ²
	<u>Thousand cu.ft.</u>	<u>Equivalent in cords</u>	<u>Thousand bd.ft.</u>
Hemlock	38,500	481,000	98,300
White pine	22,600	283,000	81,500
Other softwoods	2,900	36,000	1,200
All softwoods	64,000	800,000	181,000
Sugar maple	91,700	1,146,000	223,600
Basswood	42,400	530,000	146,600
Ash	47,600	595,000	137,800
Beech	55,700	696,000	132,800
Red maple	55,500	694,000	100,800
Elm	28,000	350,000	72,300
Red oak	29,900	374,000	62,200
White oak	8,300	104,000	33,800
Hickory	10,000	125,000	27,800
Chestnut oak	17,500	219,000	21,900
Black cherry	8,700	109,000	21,100
Yellow birch	13,700	171,000	20,600
Aspen	23,400	292,000	11,600
Other hardwoods	12,600	157,000	17,700
All hardwoods	445,000	5,562,000	1,030,600
All species ³	509,000	6,362,000	1,211,600

¹Includes sawtimber. Cord equivalent in rough stand-
ard cords assumed to average 80 cubic feet of peeled wood.

²Log scale, International $\frac{1}{4}$ -inch rule.

³Excludes the net volume of cull trees--6,000,000
cubic feet.

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Table 8.--Net volume of live timber on commercial forest land
by diameter class, 1950

Diameter class ¹ (inches at breast height)	Growing stock	Saw- timber
	<u>Thousand cu.ft.</u>	<u>Thousand bd.ft.</u>
Softwoods:		
6	9,400	--
8	14,200	--
10	9,100	34,300
12	8,100	34,400
14	7,000	31,600
16	6,000	28,700
18	4,200	21,100
20	2,800	14,400
22 and more	3,200	16,500
All softwoods	64,000	181,000
Hardwoods:		
6	58,700	--
8	82,800	--
10	96,600	--
12	72,700	317,400
14	51,500	257,800
16	36,700	191,700
18	27,300	149,300
20	6,200	37,100
22	5,500	32,600
24	4,800	29,400
26 and more	2,200	15,300
All hardwoods	445,000	1,030,600
Total	509,000	1,211,600

¹The midpoint of each 2-inch diameter class is indicated.

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Table 9.—Net volume of live timber on commercial forest land
by forest type, 1950

Forest type	Growing stock		Saw-timber
	<u>Thousand cu.ft.</u>	<u>Equivalent in cords</u>	<u>Thousand bd.ft.</u>
Hemlock	20,200	252,000	55,400
White pine	14,300	179,000	26,800
Other softwood types	1,700	21,000	(1/)
Sugar maple-beech- yellow birch	350,900	4,386,000	915,200
Ash-elm-maple	30,400	380,000	86,600
Aspen	29,900	374,000	23,900
Oak-white pine	13,900	174,000	35,900
Red oak	25,200	315,000	35,400
Chestnut oak	22,500	281,000	32,400
All types	509,000	6,362,000	1,211,600

¹Less than 100,000 board feet.

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Table 10.--Average net volume of live timber per acre
of commercial forest land, by stand-size
class, 1950

Stand-size class (and acreage of each class)	Growing stock	Saw- timber
	<u>Cubic feet</u>	<u>Board feet</u>
Sawtimber stands:		
More than 5,000 bd.ft. per acre (77,700 acres)	1,930	7,590
1,500-5,000 bd.ft. per acre (100,800 acres)	1,390	3,560
Poletimber stands:		
More than 600 cu.ft. per acre (152,700 acres)	950	1,160
200-600 cu.ft. per acre (91,100 acres)	400	210
Other ¹ (191,500 acres)	190	350
Average, all classes ² (613,800 acres)	830	1,970

¹Includes seedling-and-sapling stands and other areas.

²Hardwoods constitute 85 percent of the total board-foot volume, or 87 percent of the total cubic-foot volume in the average stand-size class. The average cubic volume in all stand-size classes is equivalent to 10 cords per acre.

APPENDIX

DEFINITIONS OF TERMS

Forest Area

Forest land area.--Includes (a) lands that are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked are excluded.)

Commercial forest land area.--Forest land that is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest land area.--Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions.

Forest Types

Forest types are classified according to the species or species group that accounts for the major portion of the stand in terms of cubic feet in sawtimber and poletimber stands, or the number of stems in seedling-and-sapling stands.

Stand-Size Classes

Sawtimber stands.--Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International $\frac{1}{4}$ -inch rule.

Poletimber stands.--Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches and larger) trees, and with at least half the minimum stocking in poletimber trees. (Poletimber stands carry at least 200 cubic feet per acre.)

Seedling-and-sapling stands.--Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling-and-sapling trees.

Other areas.--Forest-land areas not qualifying as sawtimber, poletimber, or seedling-and-sapling stands. (Includes nonstocked areas.)

Tree Classes

Sawtimber trees.--Trees of commercial species that contain at least one merchantable sawlog as defined by regional practice and that are of the following minimum diameters at breast height (d.b.h.): Softwoods 9.0 inches and hardwoods 11.0 inches. (All butt sawlogs are considered merchantable. Where the butt is defective, upper sawlogs are considered merchantable if they account--in terms of aggregate net volume--for 50 percent or more of the gross volume below the top of the uppermost sawlog. Softwood sawlogs are at least 6.0 inches in diameter, inside bark at small end; 8 to 16 feet in length; sound and straight enough to be manufactured into standard lumber. The smaller logs are generally free of surface defects other than small tight knots. Hardwood sawlogs are at least 8.0 inches in diameter inside bark at small end; 8 to 16 feet in length; suitable for sawing into standard lumber, construction timbers, or ties.)

Poletimber trees.--Trees 5.0 inches d.b.h. and larger of commercial species that do not meet the specifications for sawtimber trees but do meet regional specifications of species, soundness, and freedom from defect. (These are the trees that are straight and clear enough to make sawtimber trees eventually.)

Seedling-and-sapling trees.--Trees of commercial species less than 5.0 inches in diameter at breast height.

Cull trees.--Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Timber Volume

Growing stock.--Net volume, in cubic feet, of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

This volume is also given in rough standard cords (bark included). Cord volume is derived from growing stock by applying a factor of 80 cubic feet per cord.

Live sawtimber volume.--Net volume in board feet, International $\frac{1}{4}$ -inch rule, of live sawtimber trees.

FOREST SURVEY METHODS

These forest statistics for New York Forest District No. 3 are based on information gathered from aerial photographs and from sample plots examined on the ground.

First, photo-interpretation plots were marked off on the aerial photographs. These plots were distributed uniformly by mechanical means over photographs of the entire district. Trained photo-interpreters then classified each photo-plot as either forest or nonforest. Forest plots were classified further according to stand-size and forest type.

Field crews inspected some of the photo-plots on the ground. Enough plots were selected at random so as to attain a specified level of statistical accuracy. Species and volume data were collected on these ground plots; and the photo classification of stand size and forest type was verified or--if necessary--changed.

The survey was designed for maximum accuracy in the estimate of total cubic volume.

ACCURACY OF THE ESTIMATES

The estimates in this report may contain two kinds of error. First, photo-interpreters may make mistakes of judgment and fieldmen may make mistakes in measuring or recording. There is no practical way of finding out just how

often such errors occur. But they are kept to a minimum by closely checking all phases of the work.

The second kind of error is associated with sampling procedures. The size of this sampling error can be measured. In Forest District No. 3 the probabilities are 2 out of 3 that the actual forest area is within ± 3.8 percent of the estimated forest area, that the actual cubic-foot volume is within ± 7.1 percent of the estimated cubic-foot volume, and that the actual board-foot volume is within ± 11.6 percent of the estimated board-foot volume. This does not include any mistakes in measurement or classification.

These percentages show that the area estimates are more accurate than the volume estimates, and that the cubic-foot estimates are more accurate than the board-foot estimates.

In each of the tables, the total figures are more accurate than the subtotals. The subtotals are more accurate than any of the individual figures. Figures that are small in relation to totals are subject to larger sampling errors.

SPECIES TALLIED

The various commercial tree species tallied in New York Forest District No. 3 are listed below.¹ Approved common names are shown in parentheses if these differ from the brief name used in the tables. Other tree species may occur in the area, but unless they were tallied on the field plots they were not included in the following list.

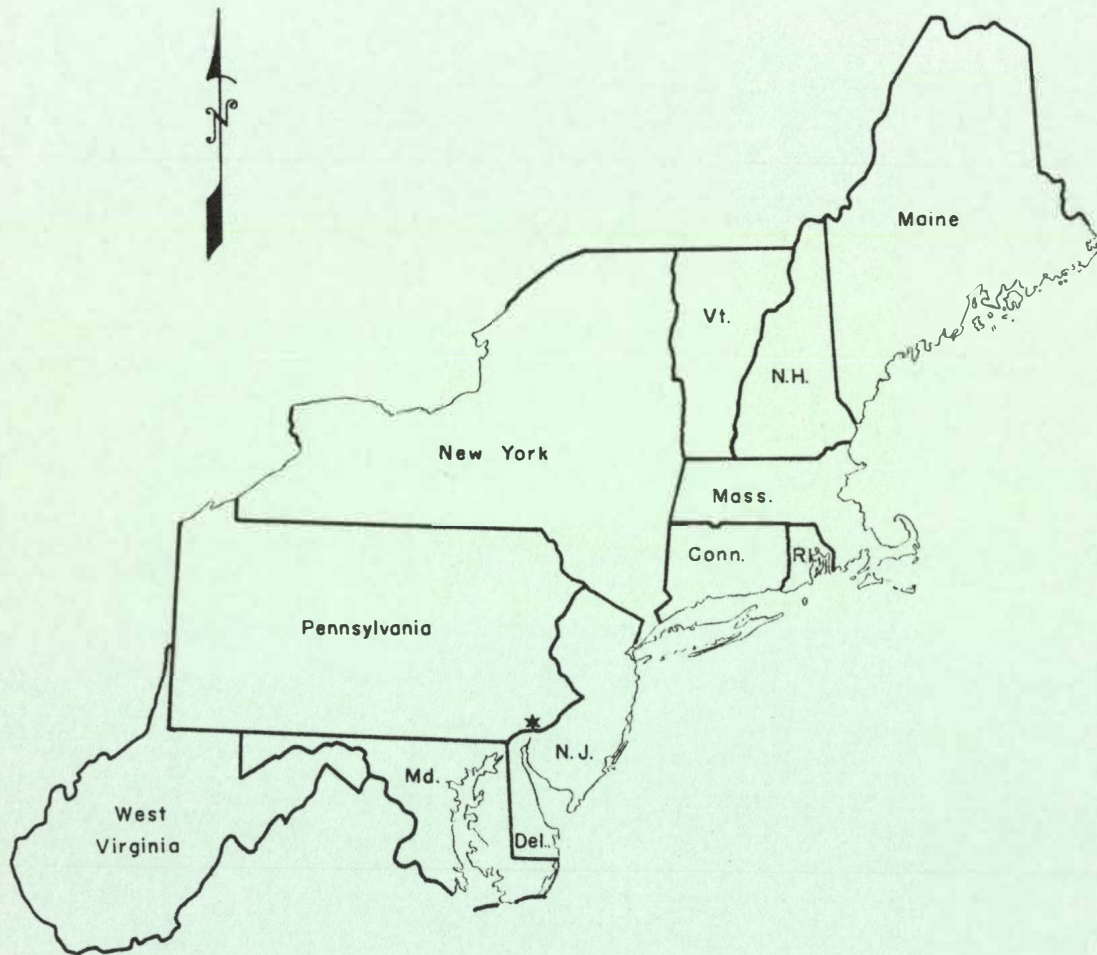
Softwoods

Hemlock (Eastern hemlock)	- <u>Tsuga canadensis</u>
White pine (Eastern white pine)	- <u>Pinus strobus</u>
(Red pine)	- <u>Pinus resinosa</u>
Other softwoods (Red spruce)	- <u>Picea rubens</u>
(Pitch pine)	- <u>Pinus rigida</u>
(Northern white-cedar)	- <u>Thuja occidentalis</u>

¹U. S. Forest Service. Check list of the native and naturalized trees of the United States including Alaska. 325 pp. Washington. 1949.

Hardwoods

Sugar maple	- <u>Acer saccharophorum</u>
Basswood (American basswood)	- <u>Tilia americana</u>
Ash	- <u>Fraxinus</u> species
Beech (American beech)	- <u>Fagus grandifolia</u>
Red maple	- <u>Acer rubrum</u>
Elm	- <u>Ulmus</u> species
Red oak (Northern red oak)	- <u>Quercus borealis</u>
White oak	- <u>Quercus alba</u>
Hickory	- <u>Carya</u> species
Chestnut oak	- <u>Quercus montana</u>
Black cherry	- <u>Prunus serotina</u>
Yellow birch (Yellow birch)	- <u>Betula lutea</u>
(Sweet birch)	- <u>Betula lenta</u>
Aspen (Bigtooth aspen)	- <u>Populus grandidentata</u>
(Quaking aspen)	- <u>Populus tremuloides</u>
Other hardwoods (Paper birch)	- <u>Betula papyrifera</u>
(Butternut)	- <u>Juglans cinerea</u>
(Sycamore)	- <u>Platanus occidentalis</u>
(Black willow)	- <u>Salix nigra</u>



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